

**REMARKS**

The Examiner makes the following rejections:

- A. Claims 50, 99, 100, 102 and 108 are rejected as allegedly anticipated by Walt.
- B. Claims 50, 76, 98-100, 102, 108, 109, 111, 113, 119 and 120 are rejected as allegedly obvious under section 103(a) on the basis of Walt, in view of Felder, Chang, or Ravkin, when taken with Pope, Dakss and Peters.
- C. Claim 103 is rejected as allegedly obvious under section 103(a) on the basis of Walt, in view of Felder, Chang, or Ravkin, when taken with Pope, Dakss and Peters, and further in view of Wang.
- D. Claims 50, 76, 98-105, 108-111, 113-115, 119 and 120 are rejected as allegedly obvious under section 103(a) on the basis of Walt, in view of Felder, Chang, or Ravkin, when taken with Pope, Dakss and Kaetsu.

Applicants traverse and offer the following response.

**A. Walt Does Not Anticipate**

Claims 50, 99, 100, 102 and 108 are rejected as allegedly anticipated by Walt.

Applicants cannot agree. Applicants submit that the non-spherical limitation (previously added to Claim 50) distinguishes over Walt. Without waiving this argument, but to further the prosecution, and hereby reserving the right to prosecute the unamended (or similar) claims in the future, Claim 50 has been amended to add the limitations of Claims 98 and 102 (Claims 98 and 102 are hereby canceled without prejudice to their prosecution in the future). Since the Examiner does not indicate that the limitations of Claim 98 are taught in Walt, Claim 50 is (and corresponding dependent claims are) not anticipated. As amended, Claim 50 clearly indicates that the detection of the analyte is done by associating the shape of the sensor producing the signal.

**B. The Claims Are Not Obvious**

**1. Dakss et al. Is Deficient**

**a. Dakss is non-analogous art.**

Dakss is directed to the attachment of microspheres to optical fibers to create a lens. The Dakss reference says nothing about receptors, analytes, arrays or detection. The Federal Circuit has outlined a basic definition for non-analogous art:

The determination whether prior art is analogous involves some factual issues concerning whether the reference is within the field of the inventor's endeavor or reasonably pertinent to the particular problem with which the invention was involved.

*Finish Engineering Co., Inc. v. Zerpa Industries, Inc.*, 806 F.2d 1041, 1 USPQ2d 1114, 1116 (Fed. Cir. 1986). The problem Applicants seek to solve is to allow detection of analytes without being confined to using receptors attached to fix positions in one large ordered array; rather, by using a plurality of smaller sensors of different shapes, one can use random arrays. Thus, the Dakss reference is not "reasonable pertinent to the particular problem to which the invention was involved".

The Examiner is reminded that the determination of whether an inventor would consider a specific reference is based upon the expressed purpose of the reference. In this regard, the Dakss references indicates the purpose to be:

This invention relates to a method for mounting a microsphere coupling lens on an optical fiber, especially for providing the efficient coupling of light to the fiber.

(See Field of the Invention). Since Dakss has a different purpose, there is no reason for one skilled in the art of analyte detection to consider it. The Examiner has offered no reasons why one seeking to solve problems in the field of analyte detection would even look at Dakss.

Because the Dakss reference is non-analogous art, the entire set of 103 rejections against Claims 50 and 76 (and corresponding dependent claims) cannot stand – since Claims 50 and 76 both have the element of a cured polymer and each rejection relies on

Dakss as the primary source for the claim limitation of a cured polymer.<sup>1</sup>

**b. The Examiner Has Misconstrued The Claims**

Without waiving the above argument that Dakss is non-analogous art, it must be further stressed that what Dakss reference teaches is not what is set forth in the claims, and in particular, in Claim 76 and amended Claim 50. The Examiner argues that Dakss teaches immobilizing a particle so that it is “disposed on or at the exterior surface of the cured liquid composition.” (Office Action, page 6). Even if true, this is not relevant to Claims 50 and 76. These claims not have a limitation of immobilizing particles. Claim 76 has the feature of having sensing elements “disposed on or at the exterior surface of the cured liquid.” As further set forth in Claims 50 and 76, the sensing elements comprise receptors (which the specification indicates can be nucleic acid, antibodies, etc.) in a polymeric support. Since particles are not receptors, what the Examiner finds in Dakss is not relevant.

**2. Walt Teaches Beads**

The Examiner continues to use Walt as the primary reference, even though the Walt patent teaches the use of beads. As previously argued, Claim 50 specifies non-spherical sensors and Claim 76 specifies sensors of different shapes. Thus, the use of beads is not relevant. Importantly, it is the use of different shapes that permits random arraying. While the Examiner cites Felder, Chang and Ravkin, no basis for combining these references with Walt is provided other than a conclusory statement that “it would be obvious.” It is respectfully submitted that the Examiner has no basis for the combination. Moreover, beads of different sizes are not relevant to the claimed subject matter of using different shapes (not just sizes). The change is not trivial since the use of different shapes is what 1) translates the signal into meaningful information (see page 11, lines 9-10: “The sensing elements may have unique shapes, each of the shapes being associated with one or more analytes.”) and 2) permits the use of random (rather than ordered) arrays (see

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<sup>1</sup> Pope (which is also non-analogous art) merely cites Dakss. Pope is concerned with “light which causes either the organic dye or the inorganic ion to selectively reflect a portion of the white light according to its absorptive and reflective spectral characteristics.” This is not relevant. Furthermore, neither Peters nor Kaetsu teach a cured polymer.

page 18, lines 26-27: "FIG 16A depicts an array of cross, square, and triangle shaped sensing elements formed using the random arraying approach.") Thus, it is respectfully submitted that the claims should be allowed.

### **3. Wang Does Not Teach Random Arrays**

The Examiner cites Wang in a combination of eight (8) references. However, Wang teaches the use of arrays with tracks. This is contrary to claimed subject matter. Wang does not teach random arrays. As such, Wang cannot serve as a basis for obviousness.

### **4. The Examiner Misunderstands The Case Law**

The Examiner argues that the *In re Keller* and *In re Merck & Co.* cases support the legal proposition that one cannot attack the references individually. This is not correct. These cases apply to the situation where only one reference is rebutted and where the applicant remains silent on the other references in the combination. This is not the case here. Applicants have provided an argument regarding the primary reference (Walt) and each of the other references (Felder, Chang, Ravkin, Pope, Dakss, Peters, Kaetsu and Wang). Applicants have highlighted the deficiencies in Dakss (and pointed out that Pope, Peters and Kaetsu do not remedy these deficiencies). Applicant has argued that Felder, Chang and Ravkin cannot be combined with Walt without a basis for the combination. This is consistent with more recent Federal Circuit precedent states that references must be evaluated individually for their specific motivation to one skilled in the art, without hindsight, before the combination can be made. *In re Rouffet*, 149 F.3d 1350, 476 USPQ2d 1453, 1458 (Fed. Cir. 1998). In any further office action, the Examiner must respond to both Applicants' analysis of *Keller* and *Merck*, as well as Applicants' citation to *Rouffet*.

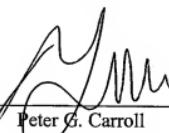
### **5. The Declaration Was Sufficient**

Applicants previously submitted a Rule 131 Declaration swearing behind the December 1, 2000 filing date of Chang et al. The Examiner argues that the Declaration is deficient because it a) doesn't say the invention was made in the U.S., b) doesn't demonstrate diligence, and c) was not signed by all parties. Applicants disagree. The evidence provided was an invention disclosure of a U.S. university, therefore it is clear the invention was made in the U.S. The evidence provided shows a submission date of September 2000 and the Examiner can take note of the February 2001 filing date; filing a patent application within five months of an invention disclosure is *prima facie* evidence of diligence. Finally, the Declaration was signed by the senior scientist in the laboratory and first named inventor, Dr. Willson (and it was indicated that an attempt will be made to get other signatures from people who are, due to the passage of time, not at the university). In view of this, it is respectfully requested that the Examiner reconsider the Declaration.

### **CONCLUSION**

It is believed that the arguments and amendments (as well as the 131 Declaration which removes certain references as prior art) render the claims allowable. Should the Examiner believe that a telephone interview would aid in the prosecution of this application Applicants encourage the Examiner to call the undersigned collect at (781) 828-9870.

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